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SPECIFICATIONS AND DRAWINGS FOR 7.2 / 12.5 Kv. LINE CONSTRUCTION



RURAL ELECTRIFICATION ADMINISTRATION
U. S. DEPARTMENT OF AGRICULTURE

SPECIFICATIONS FOR CONSTRUCTION

1. General

All construction work shall be done in a thorough and workman-like manner in accordance with the Staking Sheets, Plans and Specifications, and the Construction Drawings.

The Sixth Edition of the National Electrical Safety Code shall be followed except where local regulations are more stringent, in which case local regulations shall govern.

2. Distributing Poles

In distributing the poles, large, choice, close-grained poles shall be used for transformer, deadend, angle, and corner poles.

3. Pole Setting

The minimum depth for setting poles shall be as follows:

<u>Length of Pole (feet)</u>	<u>Setting in Soil (feet)</u>	<u>Setting in All Solid Rock (feet)</u>
20	4.0	3.0
25	5.0	3.5
30	5.5	3.5
35	6.0	4.0
40	6.0	4.0
45	6.5	4.5
50	7.0	4.5
55	7.5	5.0
60	8.0	5.0

"Setting in Soil" specifications shall apply:

- a. Where poles are to be set in soil.
- b. Where there is a layer of soil of more than two (2) feet in depth over solid rock.
- c. Where the hole in solid rock is not substantially vertical or the diameter of the hole at the surface of the rock exceeds approximately twice the diameter of the pole at the same level.

"Setting in All Solid Rock" specifications shall apply where poles are to be set in solid rock and where the hole is substantially vertical, approximately uniform in diameter and large enough to permit the use of tamping bars the full depth of the hole.

Where there is a layer of soil two (2) feet or less in depth over solid rock, the depth of the hole shall be the depth of the soil in addition to

the depth specified under "Setting in All Solid Rock" provided, however, that such depth shall not exceed the depth specified under "Setting in Soil."

On sloping ground, the depth of the hole always shall be measured from the low side of the hole.

Poles shall be set so that alternate crossarm gains face in opposite directions, except at terminals and deadends where the gains of the last two poles shall be on the side facing the terminal or deadend. On unusually long spans, the poles shall be set so that the crossarm comes on the side of the pole away from the long span. Where pole top pins are used, they shall be on the opposite side of the pole from the gain, with the flat side against the pole.

Poles shall be set in alignment and plumb except at corners, terminals, angles, junctions, or other points of strain, where they shall be set and raked against the strain so that the conductors shall be in line.

Poles shall be raked against the conductor strain not less than one inch for each ten feet of pole length nor more than two inches for each ten feet of pole length after conductors are installed at the required tension.

Pole backfill must be thoroughly tamped the full depth. Excess dirt must be banked around the pole.

4. Grading of Line

When using high poles to clear obstacles such as buildings, foreign wire crossings, railroads, etc., there shall be no upstrain on pin-type insulators in grading the line each way to lower poles.

5. Guys and Anchors

Guys shall be placed before the conductors are strung and shall be attached to the pole as shown in the Construction Drawings.

All anchors and rods shall be in line with the strain and shall be so installed that approximately six inches of the rod remain out of the ground. In cultivated fields or other locations, as deemed necessary, the projection of the anchor rod above earth may be increased to a maximum of 12 inches to prevent burial of the rod eye. The backfill of all anchor holes must be thoroughly tamped the full depth.

When a cone anchor is used, the hole, after the anchor has been set in place, shall be backfilled with coarse crushed rock for two feet above the anchor, tamping during the filling with the remainder of the hole to be backfilled and tamped with dirt.



United States
Department of
Agriculture

Rural
Electrification
Administration

REA Bulletin 50-3
Standard D 804

Specifications and Drawings for 12.5/7.2 kV Line Construction

UNITED STATES DEPARTMENT OF AGRICULTURE
Rural Electrification Administration

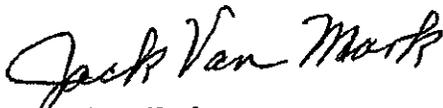
May 9, 1983

REA Bulletin 50-3 (D-804)

SUBJECT: Specifications and Drawings for 12.5/7.2 kV Line Construction

- I. Purpose: To announce the issuance of REA Standard D-804, Specifications and Drawings for 12.5/7.2 kV Line Construction.
- II. General: REA has revised REA Form 804, Specifications and Drawings for 7.2/12.5 kV Line Construction (August 1962), and it has been renamed REA Standard D-804, Specifications and Drawings for 12.5/7.2 kV Line Construction.

Changes include the addition of post insulator drawings and the correction of minor errors. Some drawings were revised for conformance with the latest edition of the National Electrical Safety Code.



Jack Van Mark
Acting Administrator

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SPECIFICATIONS AND STANDARDS

Construction Specifications and Drawings - Bul. 50-3 (Standard D-804)
Drawings - Bul. 50-3 (Standard D-804)

SPECIFICATIONS FOR CONSTRUCTION

1. General

All construction work shall be done in accordance with the staking sheets, plans and specifications, and the construction drawings.

The 1981 or latest edition of the National Electrical Safety Code (NECS), ANSI C2, shall be followed except where local regulations are more stringent, in which case local regulations shall govern.

2. Distribution of Poles

In distributing the poles, large, choice, dense poles shall be used at transformer, dead-end, angle, and corner locations.

3. Pole Setting

The minimum depth for setting poles shall be as follows:

<u>Length of Pole(Feet)</u>	<u>Setting in Soil(Feet)</u>	<u>Setting in All Solid Rock(Feet)</u>
20	4.0	3.0
25	5.0	3.5
30	5.5	3.5
35	6.0	4.0
40	6.0	4.0
45	6.5	4.5
50	7.0	4.5
55	7.5	5.0
60	8.0	5.0

"Setting in Soil" depths shall apply:

- a. Where poles are to be set in soil.
- b. Where there is a layer of soil of more than two (2) feet in depth over solid rock.
- c. Where the hole in solid rock is not substantially vertical or the diameter of the hole at the surface of the rock exceeds approximately twice the diameter of the pole at the same level.

"Setting in All Solid Rock" depths shall apply where poles are to be set in solid rock and where the hole is substantially vertical, approximately uniform in diameter and large enough to permit the use of tamping bars the full depth of the hole.

Where there is a layer of soil two (2) feet or less in depth over solid rock, the depth of the hole shall be the depth of the soil in addition to the depth specified under "Setting in All Solid Rock" provided, however, that such depth shall not exceed the depth specified under "Setting in Soil."

On sloping ground, the depth of the hole shall be measured from the low side of the hole.

Poles shall be set so that alternate crossarm gains face in opposite directions, except at terminals and dead ends where the gains of the last two (2) poles shall be on the side facing the terminal or dead end. On unusually long spans, the poles shall be set so that the crossarm is located on the side of the pole away from the long span. Where pole top insulator brackets or pole top pins are used, they shall be located on the opposite side of the pole from the gain.

Poles shall be set in alignment and plumb, except at corners, terminals, angles, junctions, or other points of strain, where they shall be set and raked against the strain so that the conductors are in line.

Poles shall be raked against the conductor strain not less than 1-inch for each 10 feet of pole length nor more than 2 inches for each 10 feet of pole length after conductors are installed at the required tension.

Pole backfill shall be thoroughly tamped in full depth. Excess dirt shall be banked around the pole.

Poles which have been in storage for more than 1 year from the date of treatment shall be ground line treated when installed.

4. Grading of Line

When using high poles to clear obstacles such as buildings, foreign wire crossings, railroads, etc., there shall be no upstrain on pin-type or post-type insulators in grading the line each way to lower poles.

5. Guys and Anchors

Guys shall be placed before the conductors are strung and shall be attached to the pole as shown in the construction drawings.

All anchors and rods shall be in line with the strain and shall be installed so that approximately 6 inches of the rod remain out of the ground. In cultivated fields or other locations, as deemed necessary, the projection of the anchor rod above earth may be increased to a maximum of 12 inches to prevent burial of the rod eye. The backfill of all anchor holes must be thoroughly tamped the full depth.

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Title 7: Agriculture

PART 1724—ELECTRIC ENGINEERING, ARCHITECTURAL SERVICES AND DESIGN POLICIES AND PROCEDURES

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Subpart E—Electric System Design

§ 1724.50 Compliance with National Electrical Safety Code (NESC).

The provisions of this section apply to all borrower electric system facilities regardless of the source of financing.

(a) A borrower shall ensure that its electric system, including all electric distribution, transmission, and generating facilities, is designed, constructed, operated, and maintained in accordance with all applicable provisions of the most current and accepted criteria of the National Electrical Safety Code (NESC) and all applicable and current electrical and safety requirements of any State or local governmental entity. Copies of the NESC may be obtained from the Institute of Electrical and Electronic Engineers, Inc., 445 Hoes Lane, Piscataway, NJ 08855. This requirement applies to the borrower's electric system regardless of the source of financing.

(b) Any electrical standard requirements established by RUS are in addition to, and not in substitution for or a modification of, the most current and accepted criteria of the NESC and any applicable electrical or safety requirements of any State or local governmental entity.

(c) Overhead distribution circuits shall be constructed with not less than the Grade C strength requirements as described in Section 26, Strength Requirements, of the NESC when subjected to the loads specified in NESC Section 25, Loadings for Grades B and C. Overhead transmission circuits shall be constructed with not less than the Grade B strength requirements as described in NESC Section 26.

§ 1724.51 Design requirements.

The provisions of this section apply to all borrower electric system facilities regardless of the source of financing.

(a) *Distribution.* All distribution facilities must conform to the applicable RUS construction standards and utilize RUS accepted materials.

(b) *Transmission lines.* (1) All transmission line design data must be approved by RUS.

(2) Design data consists of all significant design features, including, but not limited to, transmission line design data summary, general description of terrain, right-of-way calculations, discussion concerning conductor and structure selection, conductor sag and tension information, design clearances, span limitations due to clearances, galloping or conductor separation, design loads, structure strength